

Atty. Docket No. PIA31180/DBE/US
Serial No: 10/750,248

Claims

Please amend the claims as shown below. This listing of Claims replaces all prior versions and listings of the Claims in this application.

1. (Withdrawn)

2. (Withdrawn)

3. (Withdrawn)

4. (Withdrawn)

5. (Withdrawn)

6. (Withdrawn)

7. (Withdrawn)

8. (Withdrawn)

9. (Currently Amended) A method for removing polymers generated during an etching process[[es]], comprising the steps of:

removing the polymers from a metal line, a via hole, or a pad open area by using an inorganic compound including DIW, H₂SO₄, H₂O₂ and HF;

forming a protective oxide film on [[a]]the metal line, [[a]]the via hole or [[a]]the pad open area by using H₂O₂; and

protecting the metal line, the via hole or the pad open area by the protective oxide film while removing the polymers by using HF,

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wherein DIW occupies by volume about 70.5% to about 80.5% of the total volume of DIW, H₂SO₄, H₂O₂ and HF, H₂SO₄ occupies by volume about 6.5% to about 8.5% of the total volume of DIW, H₂SO₄, H₂O₂ and HF, H₂O₂ occupies by volume about 15% to about 19% of the total volume of DIW, H₂SO₄, H₂O₂ and HF, and HF occupies by volume a range of greater than 100 PPM and approximately less than or equal to 150 PPM ~~about 50 PPM to about 150 PPM~~ of the total volume of DIW, H₂SO₄, H₂O₂ and HF, and wherein the total volume % of DIW, H₂SO₄, H₂O₂ and HF is about 100 %.

10. (Canceled)

11. (Previously Presented) The method of claim 9, wherein DIW occupies by volume about 75.5% of the total volume of DIW, H₂SO₄, H₂O₂ and HF.

12. (Canceled)

13. (Previously Presented) The method of claim 9, wherein H₂SO₄ occupies by volume about 7.5% of the total volume of DIW, H₂SO₄, H₂O₂ and HF.

14. (Canceled)

15. (Previously Presented) The method of claim 9, wherein H₂O₂ occupies by volume about 17% of the total volume of DIW, H₂SO₄, H₂O₂ and HF.

16. (Canceled)

17. (Withdrawn)

18. (New) The method of claim 9, further comprising storing the DIW, the H₂SO₄, the H₂O₂ and the HF in separate tanks prior to application to the semiconductor device feature.

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19. (New) The method of claim 18, further comprising mixing the DIW, the H_2SO_4 , the H_2O_2 and the HF in a common tank to form the inorganic compound prior to application to the semiconductor device feature.

20. (New) The method of claim 19, further comprising delivering the DIW, the H_2SO_4 , the H_2O_2 and the HF to the common tank from the separate tanks via supplying tubes.

21. (New) The method of claim 20, wherein the supplying tubes comprise flow control devices that regulate the flow of the DIW, the H_2SO_4 , the H_2O_2 and the HF into the common tank.

22. (New) The method of claim 21, wherein the flow control devices deliver the DIW, the H_2SO_4 , the H_2O_2 and the HF at individually varied rates.

23. (New) The method of claim 22, wherein the common tank comprises a pump that circulates and uniformly mixes the the DIW, the H_2SO_4 , the H_2O_2 and the HF in the common tank.

24. (New) The method of claim 9, further comprising forming the metal line, the via hole, or the pad open area by an etching process using a photoresist as a mask.

25. (New) The method of claim 24, wherein the polymers comprise residual photoresist material.